inches: *which makes a difference in favor of the first half of .218 inch per annum.* Suppose we divide the period into quarters —

	Total rainfall.	Yearly average.
First quarter	245.16	30.645
Second quarter	222.99	27.874
Third quarter	257.08	32.12
Fourth quarter	250.94	31.36

This shows an excess in the third quarter, and a deficiency in the second — surely nothing like what we would expect if we are getting a regular increase in our rainfall. "Is the rainfall increasing?" I hope so, truly, but am free to say I don't know. I don't believe the record proves either that or the converse.

As regards the popular idea that we have a rainfall cycle of seven years, this record does not show that either. It will be noticed that the period from the beginning of the record up to 1866 was very irregular, was one of ups and downs, alternate years being on opposite sides of the average line. Then comes a cycle of seven years, from 1865 to 1872; then another of four years; then one of seven years again, and then one of uncertain duration not finished yet, and which, including 1890, is eight years old and still on the downward trend. The record shows a variation that I think proves nothing, excepting that there is no periodic law that can be depended on in the rainfall at Manhattan.

The greatest rainfall for any one month was for July, 1878, being 12.71 inches.

The monthly means, in inches, are as follows:

January	.75	May	3.93	September	3.19
February	.98	June	4.39	October *	2.23
March	1.16	July	4.65	November	1.47
April	2.75	August	3.86	December	.87

This table shows a gradual and steady increase from January, the month of least precipitation, to July, that of the greatest, and from then a steady decrease.

The diagram below exhibits clearly the variation in the rainfall at Manhattan.

RAINFALL AT MANHATTAN, KANSAS, 1858–90.
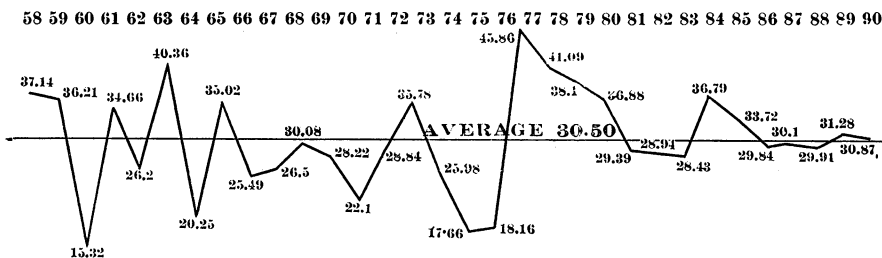
WIND VELOCITY AT MANHATTAN, KANSAS.

BY C. M. BREESE.

The record of the wind velocity at Manhattan only extends back to February, 1889.

The upper curve shown in the diagram shows the mean velocity of the wind for each hour of the day during the first nineteen months of the record. The figures 1,

*These means include the first ten months of 1890, and consequently their sum does not exactly agree with the average of the chart.

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2, 3, 4, etc., denote the hours of the day, beginning at 1 A. M. The points of the curve are at the half-hours; thus the first point marked by figures is at half an hour after midnight, or at 12:30 A. M.; the next at one hour afterward.

The lowest velocity occurs at about half-past five in the morning, and is 6.67 miles per hour at this time. There is a gradual increase until half-past one in the afternoon, when the maximum — 12.39 miles per hour — is reached. From this time until half past seven in the evening a gradual decrease occurs, from which time until about half-past seven in the morning the wind is almost constant. The average hourly velocity at different stations is as follows. The rates for all places excepting Manhattan and Lawrence, Kansas, are taken from Loomis's Meteorology.

Manhattan................. 9.35	New Orleans................ 8.00	London, Eng............. 10.00
Lawrence.................. 15.30	San Francisco.............. 9.00	Madras, India............ 7.00
New York.................. 11.00	Liverpool, Eng............. 13.00	Cape of Good Hope....... 17.00
Chicago.................... 8.00		

The highest velocity that has been recorded was at 6:30 P. M., April 8, 1890, and was sixty miles per hour. It blew at this rate for about ten minutes. The highest record for a whole hour is fifty miles, on the same evening.

The lower curve shows the mean daily velocity for the different months. Beginning with February, 1889, the velocity is shown for each consecutive month up to November, 1890. The figures do not show the exact velocities, but are the nearest whole number. The total number of miles of wind that passed during any month may be found by multiplying the mean daily velocity of that month by the number of days in the month. The lowest velocity was in October, 1889, being 157 miles; the highest in June, 1890, being 322 miles. The highest daily velocity that has been recorded for a single day was 710 miles, on April 11, 1890. The average daily velocity is 223.49 miles, which gives an average hourly velocity of 9.31 miles. This very nearly agrees with the average of the upper curve, the discrepancy being accounted for by the fact that the lower record covers a longer time than the other.

The accompanying diagram presents in condensed form the results of some thousands of calculations.

WIND VELOCITY　　　　　AT MANHATTAN.

AVERAGE 9.35

MEAN HOURLY CURVE

AVERAGE 223.49

MEAN DAILY CURVE
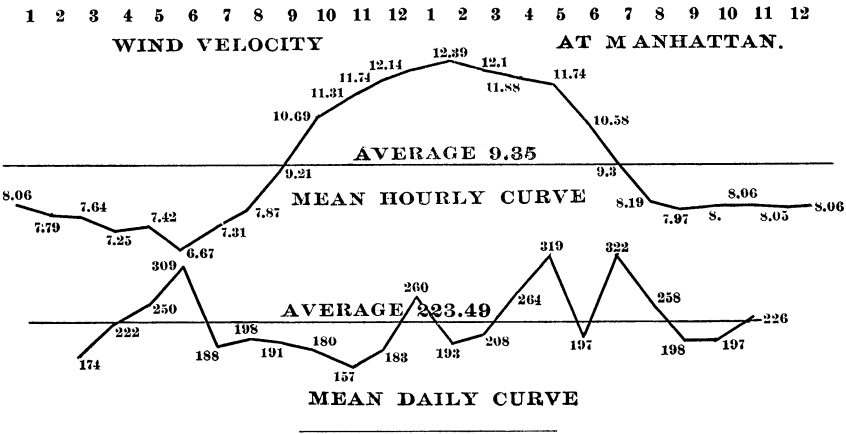
EVOLUTION IN LEAVES.

BY MRS. W. A. KELLERMAN, MANHATTAN.

Even the most casual observer could not fail to notice the general variation in the foliage of plants; that the various herbs, shrubs and trees bear leaves stamped with an individuality of their own. Anyone would be able to distinguish between